3: Wallace & Hoebel E-4, 5 (1933, 1945) 1952
NO6 Comanche NO6

for use during winter and spring. Other bags contained ornaments, 352
wooden bowls, dishes, small horn spoons, extra clothing, personal belongings, and any odds and ends. In fact, the contents of a parfleche were a perpetual surprise. It might contain anything from a tooth to a gold coin.

No tipi furnishings were complete without a supply of utensils 415
or receptacles. They, too, were adapted to the environment and the mobile habits of the owner. No pottery was made or used, simply because it could not be conveniently handled and because more practical materials were at hand. Receptacles for carrying water during travel where water holes were far apart, as was usually the case in Comanche country, needed to be light and to pack well. The paunch of the buffalo met both requirements; therefore, before the introduction of the kettle it served well. A green paunch was hung from a limb or pole and hot stones held inside until the water boiled. Water vessels were also made from "cased" deer skins, that is, skins removed whole. The legs and necks were tied tightly with sinews. Buckets or cups could be made by tying one end of the skin of a leg and fitting a small rod around the inside of the other end. Drinking cups were made from buffalo horns and terrapin shells. A few wooden [322]
spoons and bowls were used. They were worked into shape by burning, scraping, and polishing. The Comanches, however, were little interested in this type of receptacle since it was more of a burden than an advantage in their way of life. Consequently, the workmanship was primitive. A very few crude baskets, knives of stone and [285]
bone (of metal after contact with the whites), mauls, a digging stick or two, and a few bone needles completed the tipi furnishings.

3: Wallace & Hoebel E-4, 5 (1933, 1945) 1952
NO6 Comanche NO6

The modern bows were approximately three feet in length, most of them made of wood, although there were a few sinew-backed or compound ones made of buffalo, elk, or mountain-sheep horn. The latter were highly finished and required more time to make. They were worth from six to twenty ponies each.[6]

Not all men made bows in the same way, each workman following the method he thought best. The Comanche country stretched over a wide area, and the best bow materials found in one section might not be available in another. Methods varied with time also. Yet, in general, the process was much the same from the Pecos to the Arkansas and from the Cross Timbers to New Mexico. In making the horn or compound bow, the horns were first thrown into warm water and allowed to remain until they became flexible. They were then straightened and strips of suitable width were cut or sawed. After the strips were filed, shaved, scraped, or rubbed down until the flat sides fitted nicely, the desired length was obtained by overlapping and gluing the ends of from two to four slices. Another piece of horn was then laid on the center at the grasp, where it was glued fast. The whole was then filed or scraped down until it was well proportioned. All the joints were firmly bound with sinew to give resiliency to the bow. Several weeks were required for a skilled workman to make a good, ornamented bow of this type.

Bows were sometimes, though rarely, made of a single piece of horn. A long piece, as nearly straight as possible, was whittled, scraped, and rubbed until it was quite thin. After being made pliable by heating, greasing, and working, it was lashed to a straight stick and left until dry and straight. It was then firmly wrapped with sinew, which was secured in place with glue. Bows of buffalo ribs were sometimes made by the same process. Such bows, however, were of little practical use.

The wooden bow was the common bow of the Comanches. It was made principally from the Osage orange, or bois d'arc. Some Indian tribes called the tree "smooth bow"; the Omahas referred to it as yellowwood, but the French gave it the name *bois d'arc*, by which it is best known. It was plentiful along the Arkansas and Canadian rivers and in the eastern fringe of the Comanche country southward

[6] Garretson, *op. cit.*, 178.

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NO6 Comanche NO6

322 411 [824] into Texas. Bois d'arc is commonly recognized as one of the hardest, finest, and most durable of timbers. If it was not accessible, ash, white elm, ironwood, mulberry, or hickory were used, hickory being a highly esteemed bow wood.

When selecting bow wood, the Comanche chose a small upright sapling or a piece of timber with perfectly straight grain from a large tree. The heart of the tree was never used. The timber had to be straight and as free as possible from knots. It had to be seasoned or dried and not allowed to warp in the process. It was generally worked down to approximately the desired size while still green, since green wood worked more easily. Then followed the seasoning process, requiring weeks or months for completion. With fair use a properly made bow would last for many years, but since it might be accidentally broken at any time, timber in various stages of preparation was kept on hand. After the bow wood had seasoned, it was scraped and shaped to proper dimensions and rubbed with fat or brains to make it pliable. Then the stick was put aside, preferably in a warm place, to be worked again in a few days or weeks.[7] When worked to the proper finish, it was rubbed until it acquired a polish. Glue was spread over the bow, and fresh or wet sinew from the back of a buffalo bull or deer was applied. After the sinew had been wrapped, another coat of glue was applied and smoothed down by thorough rubbing. The bow was then laid aside until perfectly dry. In drying, the fresh sinew would shrink tightly to the wood and, with the glue, made the whole very strong and tough. A common wooden bow could be made in three days, but a week to a month was usually required to finish a fancy one.

411 381 Glue for bows and arrows was made from chippings from the rawhide of the neck of a buffalo bull, from the shavings cut from a buffalo bull hide in the process of thinning it down, or from horns and hoofs. These were boiled with water to make a strong glue. It was lobbed upon a smoothly whittled stick of mulberry or other wood and allowed to cool. The glue stick was carried in the bow case with the arrows for ready and frequent use. By softening in hot water it was ready as an instant mender for almost anything.

[7] This method is still used in East Texas for making handles for hammers, axes, shovels, and the like.

The Comanches

411 how to make arrows" is the opinion of Post Oak Jim. "Comanches and Wichitas make good ones."

411 322 Wood for the arrow shafts was selected and handled with the same care and patience as for the bow. Any hard, tough, straight-grained wood was used. Young shoots of the dogwood were preferred because of their straightness and freedom from knots. The second choice, but not nearly so good as dogwood, was mature ash. The young ash sapling was too pithy and soft. When neither of these was available, wild cherry, hackberry, or mulberry was used, although the hackberry required much straightening. Shafts were cut the desired length and roughly shaped, then tied in a bunch and hung near the fire place or in a dry spot to season.

When the arrow shafts had seasoned, a process which required ten days to two weeks if they were kept near a fire but much longer otherwise, they were examined by the arrow-maker for crooked places. Shafts not perfectly straight were made so. Crooked spots were greased and warmed so that the grease would penetrate readily, then quickly straightened with the hands or an implement devised for that purpose. The arrow straightener was made by drilling a hole slightly larger than that of the shaft in a buffalo bone or horn. The arrow was passed back and forth through the hole and bent until perfectly straight. Some men placed their arrows between their teeth to bend them into shape. Next, the shaft was scraped to proper size and taper, and made perfectly round. This was sometimes done by means of two grooved sandstone slabs with flat meeting faces. The arrow was placed in one groove, the other groove fitted over it. Then, holding the two stones together with one hand, the worker pulled the shaft back and forth. Most of the better arrows were grooved from the end of the feathers to the head of the arrow point. The Lipans had four straight grooves, but the Comanches usually made two straight black grooves on one side and two red spiral ones on the other. These grooves were cut with bone containing a circular hole into which extended a little projection from the margin of the hole, or with a flint with a semicircular notch and a projection. The shaft was then polished by rubbing and sometimes decorated with paintings or markings.[10]

[10] This description of Comanche arrow-making is compiled from statements by

3: Wallace & Hoebel E-4, 5 (1933, 1945) 1952
NO6 Comanche NO6

There has been much speculation about the meaning of the grooves. The most popular theory is that they permitted the blood of the victim to escape so as to weaken him. Another explanation is that the grooves symbolized lightning, which the Indians believed would make the arrows more surely fatal. It seems more probable that they were to prevent the shaft from warping.

The flight and accuracy of an arrow depended to a great extent upon the feathers. If the feathers were good and properly arranged, the arrow carried well. Those of the wild turkey seem to have been the most popular, but, when they were not obtainable, owl or buzzard feathers were used. Neither was affected by blood. Feathers of hawks and eagles were not desirable, since they were injured when wet with blood. Each arrow-maker had his own technique of winging the arrows. When the Cheyennes first began to wing their arrows, they used two feathers, but later changed to three. Some tribes used four. The Comanches used both the two- and three-feather winging technique. Some of the best-informed Comanches regard the two-feathered arrow as unsatisfactory, since it will not follow a straight line to the target. The feathers were taken from the wings, the stems split, the tip of the split stems dipped in glue, and the feathers bound in the grooves on either side of the shaft with a thread of sinew.[11]

In the distal end of the arrow shaft a notch was cut, or a cleft made, in which the arrowhead was set. Colonel Dodge believed that the Comanches placed the blade of the hunting arrow in the same plane with the notch for the string so that it would be more likely to pass between the ribs of the animal, which are up and down. For the same reason, the blade of the war arrow was at right angles to the notch, since the ribs of the human enemy were horizontal.[12] The head

informants Medicine Woman and Kills Something; also, Anon., "Indian Bow and Arrow," *loc. cit.*, 141–42; Garretson, *op. cit.*, 179; Marcy, *Adventure on Red River*, 160; R. I. Dodge, *The Plains of the Great West*, 349; Carter, *On the Border with MacKenzie*, 295–96; Domenech, *Seven Years Residence in the Great Deserts of North America*, II, 270; Baylor, "Recollections of the Comanche Indians," *loc. cit.*, 374; Grinnell, *The Cheyenne Indians*, I, 178–81; Lehmann, *op. cit.*, 94.

[11] Informant: Kills Something; also, Carter, *On the Border with MacKenzie*, 295–96; Lehmann, *op. cit.*, 94; Domenech, *Seven Years Residence in the Great Deserts of North America*, II, 270; Marcy, *Adventure on Red River*, 160.

[12] R. I. Dodge, *Our Wild Indians*, 418–19.